

Hemlock Farms Community Association Lake Manager's Report (August 2008)

On September 2, 2008, **Ecological Solutions, Inc. (ECS)** visited the fourteen (14) lakes and ponds within the Hemlock Farms Community Association to perform their monthly monitoring activities. **ECS** observed conditions on the property from 10:00 a.m. until 3:00 p.m. During that site visit the following tasks were performed:

1. Water Quality Monitoring

Weather: Mostly Sunny; High temperature was around 75°F.

In general, the results of the water chemistry showed average surface temperatures. In addition, the pH values fell within normal limits. Therefore, acidic and alkaline conditions were not a concern within the lake systems. In general, the dissolved oxygen levels were slightly lower than those observed in July. However, there was no concern about the amount of available oxygen for fish populations within these pond and lake communities. The water was clear as indicated by the low turbidity levels, with the exception of Rockwood, Little Bell, and Bluestone which were slightly discolored. According to the water quality results thus far throughout the sampling season, the water appears to be soft but appears to slightly susceptible to acid rain. The secchi depth measurements ranged in depth from 1 to 4.1 meters. The nitrate levels observed within the water communities were considered normal for this time of year. The phosphorous levels in several of the ponds contain high phosphorous levels. The levels in Rockwood were greater than 3.00 ppm, indicating the potential for an algae bloom to occur.

2. Aquatic Plant Growth

During the site visit, **ECS** observed an iron bacteria film on Willow pond. In addition, a few small patches of filamentous algae were observed on Mirror and Willow ponds. Naiad and algae were observed growing on the bottom of Little Bell Pond more than 1 foot from the surface. Dead plant material was noticed floating on the surface of Bluestone Pond, approximately 4 weeks from the treatment date. Ledgeway contained heavy bladderwort in the areas where the lilies were treated. Finally, McConnell, Saddlebrook, Little Camp, and Lower Hemlock were experiencing a minor planktonic algae bloom during the site visit. In addition, Little Camp contained a few patches of duckweed intermingled with the algae. Of the observations made during this site visit, Ledgeway appeared to be in the worst shape visually. It was 30% covered with bladderwort.

3. General Observations

Bluestone

When ECS arrived at Bluestone Pond they observed dark brown mats of dead plant material floating on the surface in the southern area of the pond. The treatment that was conducted on August 4, 2008 was successful. ECS concluded that the mats would not have been there if the material was able to flush out during a rain event. The filamentous algae which was a nuisance in July has dissipated. The high phosphorous levels observed in the pond in July have decreased dramatically. High phosphorous levels in a water body can fuel an algae bloom.

Mirror

ECS immediately observed that the pond had no flow going over the outlet indicating stagnate conditions. A minimal amount of algae was present on the surface of mirror pond. Approximately three (3) algae mats were floating on the surface. In addition, white water lilies were actively growing on the pond covering approximately 10% of the pond. Owners of the pond were not seen during this visit. ECS did treat because the water clarity was excellent and the dissolved oxygen level was lower than in past months.

Willow

No weed growth was observed growing in the pond more than two months after treating for bladderwort and water star grass. However, ECS did observe some small patches of filamentous algae and detected high phosphorous levels in the pond. In addition, an iron bacteria film was observed on the pond near the outlet. This bacteria is likely due to the geology of the surrounding area and a high iron content located in the soil. An iron bacteria film is not harmful and is a result of geological processes. Finally, no flow was observed go over the outlet from the pond indicating stagnate conditions. ECS did not perform an algae treatment due to stagnate and low dissolved oxygen conditions.

McConnell

ECS surveyed the areas that were treated for small pondweed during the end of July. No evidence of the small pondweed was observed on the lake. However, the lake did seem to be experiencing a planktonic algae bloom at the time of the site visit. Also ECS observed high phosphorous levels (nutrients) in the lake. These nutrients were available in the water column which was used by the unicellular organisms in the lake to fuel a bloom. In addition, ECS observed a large number of panfish schooling around the docks located at Laurel Ridge. ECS concluded that they were responding to the planktonic bloom and feeding on zooplankton within the water column.

Rockwood

ECS immediately observed that the water level has dropped over one foot since May. The pond remains absent of bladderwort. However, the high phosphorous levels indicate the potential for an algae bloom to occur. At the time of the visit an algae bloom was not occurring. In addition, the water clarity was good. The bottom of the pond could be seen.

Rimrock

Overall the condition of the pond was good. The areas of bladderwort seen in the month of July have dissipated and no bladderwort was visible on the surface. However, the potential for an algae bloom is high due to the high (>3.00 ppm) phosphorous level observed in the pond. Finally, approximately one dozen geese were observed on the lake during the site visit.

Ledgeway

The white water lilies treatment that was performed on July 28, 2008 was successful. However, the areas that were previously covered with water lilies in the north end of the pond have now been replaced by bladderwort. The bladderwort was six inches from the surface within the area. In addition, the level of the pond is down approximately one and a half feet since May. ECS did not feel a treatment was necessary because the weeds had not reached the surface. In addition, the growing season has ended and ECS did not feel the weeds would reach the surface.

Little Bell

During the site visit, ECS observed patches of water star grass and filamentous algae growing on the bottom of the pond. Again, the high phosphorous level reiterated the fact that an algae bloom is possible in the future. There have been no complaints made about the condition of the pond this year. ECS plans to monitor the weed growth and will conduct a treatment if necessary.

Elm

Elm Lake did not contain any submerged weeds and no algae was present on the lake during the site visit. There has been no instance of weeds or algae on the lake to date this year. Secchi depths are the deepest on this lake. The clarity was greater than 13 feet during this site visit. Several painted turtles and snapping turtles have been observed on the lake this year. Also, this lake contained the lowest nutrient levels.

Hemlock

The oscillatoria algae bloom that occurred on August 13, 2008 has dissipated since being treated on August 18, 2008. The phosphorous levels and secchi depth reading have returned to normal. A few small patches of white water lily were observed in the southern cove areas on July 30, 2008. However, ECS plans to leave them for fish cover because that portion of the lake is shallow and contains higher temperatures. To date ECS has not received any more complaints about the condition of the lake.

Lower Hemlock

In previous years algae blooms were frequent occurrences on this lake. However, in 2008, the first algae bloom was not observed on the lake until August 13, 2008. During the site visit ECS noticed that there is still a slight planktonic bloom on the lake since being treated on August 18, 2008. This is probably due to the nutrients flushing into the lake from Hemlock Lake. The secchi depth and phosphorous levels have improved. Therefore, ECS did not feel a treatment was necessary.

Saddlebrook

ECS observed a slight planktonic bloom occurring on the pond during the site visit. In addition, the pond contained a slightly high phosphorous level. However, the pond had a secchi depth reading of 2 meters. ECS felt that the water clarity did not warrant a treatment since the bottom of the pond could still be easily seen. ECS will continue to monitor the pond for an algae bloom.

Little Camp

As with every other month this year, patches of filamentous algae were observed in areas that do not get wind and are stagnate. In addition, the pond did not contain high phosphorous levels and the bottom of the pond could clearly be seen from a canoe. Therefore, ECS did not feel that a treatment was necessary.

ECS will continue to monitor the lakes and ponds for any changes. A summary chart has been attached showing cumulative treatment and monitoring results thus far in 2008.

If you have any questions regarding any aspect of this report, please do not hesitate to contact us.

Sincerely,

Jessica Demusz

Jessica Demusz
Environmental Scientist

Attachments:
Overall Summary
August 2008 Water Quality Results
Treatment Detail Sheets

Lake/Pond	Date	Surface Temp (°C)	Surface D.O. (mg/l)	pH	Turbidity (FTU)	Nitrates (ppm)	Phosphates (ppm)	Alkalinity/Hardness (ppm)	Secchi (m)	Conductivity (um/hos)	Treated (Y/N)	Chemical Used	Amount Applied (gal/lbs.)	Comments
Elm	5/28/08	19.9	9.18	7.2	2	0.10	0.37	12/NA	2.7	150	N	NA	NA	no algae or weeds were observed on the lake surface.
Elm	6/23/08	25.7	8.5	7.6	0	0.08	2.72	12/28	5	140	N	NA	NA	no algae or weeds were observed on the lake surface.
Elm	7/30/08	29.1	7.51	7.3	4	0.19	0.09	NA	3.2	130	N	NA	NA	no algae or weeds were observed on the lake surface.
Elm	9/2/08	26.7	7.8	7.6	0	0.13	0.61	20/32	4.1	120	N	NA	NA	no algae or weeds were observed on the lake surface.
Hemlock	5/28/08	18.7	9.75	7.2	6	0.23	0.88	16/NA	1.9	140	N	NA	NA	no algae was observed in nuisance areas.
Hemlock	6/23/08	25.6	8.19	7.4	0	0.13	2.22	20/32	1.3	130	N	NA	NA	water lillies beginning to surface in cove.
Hemlock	7/30/08	29.8	8.89	7.6	13	0.09	0.69	NA	1.8	110	N	NA	NA	No algae was observed in cove areas.
Hemlock	8/18/08	NA	NA	NA	NA	NA	NA	NA	NA	NA	Y	Copper Sulfate	275 lbs.	heavy bloom of Oscillatoria algae.
Hemlock	9/2/08	26.3	81.4	7.7	2	0.13	0.15	24/32	1	120	N	NA	NA	No algae was observed on the lake surface.
Lower Hemlock	5/28/08	19.2	9.24	7.3	4	0.17	0.91	16/NA	2.5	120	N	NA	NA	no algae was visible on the surface.
Lower Hemlock	6/23/08	26.5	8.69	7.5	11	0	0.83	20/36	1.3	130	N	NA	NA	no algae was visible.
Lower Hemlock	7/30/08	28.9	8.76	7.6	0	0.19	0.03	NA	1.1	110	N	NA	NA	no algae was visible.
Lower Hemlock	9/2/08	26.4	7.67	8	1	0.05	0.09	32/32	1.2	120	N	NA	NA	no algae or weeds were visible on the surface
Saddlebrook	5/28/08	21.0	8.58	7.1	2	0.11	0.04	8/NA	2 (bot)	100	N	NA	NA	no algae or weeds visible
Saddlebrook	6/23/08	26.1	8.33	7.5	3	0.08	0.49	16/20	1.4	100	N	NA	NA	no algae or weeds visible.
Saddlebrook	7/30/08	30.5	8.34	8	5	0.07	2.89	NA	1.5 (bot)	100	N	NA	NA	no algae or weeds visible
Saddlebrook	9/2/08	26.4	9.33	7.6	0	0.04	0.94	16/32	2 (bot)	90	N	NA	NA	observed a small planktonic bloom on the surface.
Little Camp	5/28/08	22	12.13	7.4	8	0.1	0.37	8	1.5 (bot)	160	N	NA	NA	filamentous algae on surface. Will treat on next visit.

Little Camp	6/4/08	25.1	10.33	8.2	N/A	N/A	N/A	N/A	1.2	170	Y	Citrine/ Reward	2.5 Citrine 1 qt. Reward	Reward was used on cattails where fishing takes place and Citrine was used on filamentous algae mats.
Little Camp	6/23/08	26.3	8.58	7.4	2	0.08	0.24	20/40	1	170	N	NA	NA	Algae has cleared up from previous treatment. Some bladderwort in small patches.
Little Camp	7/30/08	29.8	12.95	8.2	0	0.03	1.99	NA	1.1 (bot)	150	N	NA	NA	very small area of filamentous algae on surface.
Little Camp	9/2/08	27.2	9.87	8.1	0	0.09	0.07	20/36	1.1	150	N	NA	NA	very small area of filamentous algae on surface.
Rockwood	5/28/08	20.5	8.63	7.4	7	0.12	0.23	8/NA	2 (bot)	30	N	NA	NA	bladderwort was heavy on the bottom and some mats are starting to form.
Rockwood	6/23/08	25.0	7.84	7.7	0	0.00	0.15	16/24	2	30	N	NA	NA	bladderwort needs to be treated on next visit.
Rockwood	6/25/08	NA	7.53	NA	NA	NA	NA	NA	NA	NA	Y	Citrine/ Reward	1 Reward 0.75 Citrine	treated bladderwort
Rockwood	7/30/08	30.4	8.42	7.3	11	0.17	0.45	NA	bottom	30	N	NA	NA	bladderwort if floating on the surface. 75% coverage.
Rockwood	8/4/08	NA	NA	NA	NA	NA	NA	NA	NA	NA	Y	Citrine/ Reward	1.5 of each	treated floating bladderwort and brown algae.
Rockwood	9/2/08	25.2	7.23	7.6	6	0.05	1.69	20/28	1.5	40	N	NA	NA	no weeds or algae visible. Water has dropped 1 foot since the spring.
Rimrock	5/28/08	21.2	8.73	7.3	0	0.15	0.2	8/NA	2.5 (bot)	50	N	NA	NA	bladderwort was starting growing on the bottom.
Rimrock	6/23/08	25.9	7.76	7.8	2	0.09	0.33	12/20	1.7	50	N	NA	NA	bladderwort is ready to treat on next visit.
Rimrock	6/25/08	NA	8.02	NA	NA	NA	NA	NA	NA	NA	Y	Citrine/ Reward	3 gal each	treated the bladderwort.
Rimrock	7/30/08	30.4	8.15	7.1	0	0.03	1.02	NA	1.4	50	N	NA	NA	small areas of bladderwort floating on surface.
Rimrock	9/2/08	26.1	6.98	7.7	0	0.08	>3.00	16/20	1.7	50	N	NA	NA	No algae or weeds visible. 12 geese observed.
Ledgeway	5/28/08	21.7	7.95	7.2	4	0.0	1.05	12/NA	1.4	100	N	NA	NA	water lillies were starting to surface.
Ledgeway	6/23/08	25.8	6.76	7.5	10	0.2	0.29	8/28	1.5	100	N	NA	NA	water lillies surfacing and bladderwort starting to show on bottom.

Ledgeway	7/28/08	NA	NA	NA	NA	NA	NA	NA	NA	NA	Y	AquaPro	1	Treated water lillies
Ledgeway	7/30/08	31	7.73	7.7	13	0.17	0.08	NA	1.1	90	N	NA	NA	lillies starting to brown out from treatment.
Ledgeway	9/2/08	26.4	7.43	7.5	4	0.04	1.94	12/20	1.3	80	N	NA	NA	bladderwort to the surface where lillies have died.
Little Bell	5/28/08	18.8	10.06	7.3	0	0.16	0.25	12/NA	2	190	N	NA	NA	no weeds or algae visible
Little Bell	6/23/08	24.7	8.36	7.5	12	0.09	0.68	12/36	1.9	190	N	NA	NA	No algae was visible and some water star grass was observed along northern shoreline.
Little Bell	7/30/08	30.5	9.54	7.6	NA	NA	NA	NA	1.5	160	N	NA	NA	lost our sample. Some Naiad was beginning to grow in back quarter.
Little Bell	9/2/08	25.6	8.44	7.6	9	0.11	2.27	20/28	1.6 (bot)	170	N	NA	NA	Naiad and algae growing on bottom 2-3 feet from surface.
Bluestone	5/28/08	20.2	9.45	7.3	7	0.11	1.75	12/NA	2.7 (bot)	170	Y	Citrine/Reward	1 gal each	water star grass and algae were heavy around boat launch.
Bluestone	6/23/08	25.0	8.51	7.6	0	0.06	1.41	20/32	1.57	160	N	NA	NA	water star grass and algae have cleared up from last month's treatment.
Bluestone	7/30/08	30.7	14.28	7.6	0	0.26	2.04	NA	no access	150	N	NA	NA	heavy filamentous algae and naiad in boat launch area.
Bluestone	8/4/08	NA	NA	NA	NA	NA	NA	NA	NA	NA	Y	Citrine/Reward/AquaPro	3 gal Reward 3 gal Citrine 0.25 AquaPro	treated 1/3 of lake in front of boat launch and spot treated lilles.
Bluestone	9/2/08	26.0	6.23	7.5	7	0.07	0.04	20/24	2.5	150	N	NA	NA	brown mats of dead plant material on the surface.
Mirror	5/28/08	17.7	8.23	7.4	0	0.09	0.87	12/NA	1.5(bot)	160	N	NA	NA	no weeds or algae visible
Mirror	6/23/08	23.4	7.42	7.6	11	0.07	0.54	20/32	1.25	160	N	NA	NA	algae mats starting to form. Will treat on next visit.
Mirror	6/25/08	NA	8.05	NA	NA	NA	NA	NA	NA	NA	Y	Citrine	0.75	Algae treatment was done for filamentous algae mats.
Mirror	7/30/08	28.5	10.09	7.5	4	0.24	0.76	NA	bottom	130	N	NA	NA	small area of filamentous algae on surface.
Mirror	9/2/08	22.6	5.71	8.3	0	0.18	1.02	20/28	bottom	150	N	NA	NA	small area of filamentous algae on surface. No Flow.
Willow	5/20/08	11.4	11.14	7.3	N/A	N/A	N/A	N/A	bottom	N/A	Y	Citrine	3.5	Algae was growing from the bottom and water star grass was visible.

Willow	5/28/08	18.7	8.71	7.2	3	0.05	0.52	12/NA	0.6 (bot)	160	N	NA	NA	Algae has gone due to last week's treatment. Spatterdock beginning to grow.
Willow	6/23/08	23.8	6.64	7.6	9	0.07	0.17	20/36	bottom	170	N	NA	NA	bladderwort, Naiad, and algae heavy in areas. Will treat on next visit.
Willow	6/25/08	NA	7.89	NA	NA	NA	NA	NA	NA	NA	Y	Citrine/Reward	1.25 Reward 2.5 Citrine	treated the bladderwort, Naiad, and algae.
Willow	7/30/08	28.8	9.93	7.6	0	0.16	1.08	NA	bottom	130	N	NA	NA	very small area of filamentous algae near inlet.
Willow	9/2/08	23.3	5.9	7.6	3	0.04	2.67	20/36	bottom	170	N	NA	NA	Iron bacteria on surface. Small areas of algae. No Flow.
McConnell	5/28/08	19	9.47	7.6	2	0.12	0.29	8/NA	2.5	120	N	NA	NA	Good water clarity. Shoreline emergents starting to grow.
McConnell	6/23/08	26.5	8.38	7.1	4	0.17	0.02	24/36	2	120	N	NA	NA	nuisance weeds from last year have not emerged yet.
McConnell	7/28/08	NA	NA	NA	NA	NA	NA	NA	NA	NA	Y	Citrine/Reward/AquaPro	10 Reward 5 Citrine 0.5 AquaPro	treated pondweed in same areas as in 2007. Treated docks that were enclosed with lillies.
McConnell	7/30/08	28.7	7.95	6.9	0	0.12	2.21	NA	1.4	120	Y	Citrine/Reward	7.5 gal each	Finished treating pondweed from previous visit.
McConnell	9/2/08	26.5	7.72	6.8	0	0.02	1.74	16/32	1.5	110	N	NA	NA	pondweed is gone.

Figure 1. Summary table of the water chemistry results and treatment details observed in 2008 at the Hemlock Farms Community Association.

Parameter	McConnell Creek Watershed					York Creek Watershed	Maple Creek Watershed			Rock Hill Creek Watershed			
	Bluestone	McConnell	Mirror	Willow	Little Bell	Elm	Rockwood	Rimrock	Ledgeway	Little Camp	Lower	Hemlock	Saddlebrook
pH	7.5	6.8	8.3	7.6	7.6	7.6	7.6	7.7	7.5	8.1	8	7.7	7.6
TDS(umhos)	150	110	150	1170	170	120	40	50	80	150	120	120	90
DO(Surface)	6.23	7.72	5.71	5.9	8.44	7.8	7.23	6.98	7.43	9.87	7.67	8.14	9.33
DO(1m)	N/A	7.94	N/A	N/A	N/A	7.72	N/A	N/A	N/A	N/A	N/A	8.36	N/A
DO(2m)	N/A	7.82	N/A	N/A	N/A	7.52	N/A	N/A	N/A	N/A	N/A	7.52	N/A
DO (3m)	N/A	6.9	N/A	N/A	N/A	7.32	N/A	N/A	N/A	N/A	N/A	6.87	N/A
DO (4m)	N/A	N/A	N/A	N/A	N/A	6.69	N/A	N/A	N/A	N/A	N/A	5.8	N/A
DO (5m)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.31	N/A
Temp (°C) surface	26	26.5	22.6	23.3	25.6	26.7	25.2	26.1	26.4	27.2	26.4	26.3	26.4
Temp (°C) (1m)	N/A	25.7	N/A	N/A	N/A	26	N/A	N/A	N/A	N/A	N/A	25.8	N/A
Temp (°C) (2m)	N/A	25.3	N/A	N/A	N/A	25.8	N/A	N/A	N/A	N/A	N/A	25.2	N/A
Temp (°C) (3m)	N/A	25.1	N/A	N/A	N/A	25.6	N/A	N/A	N/A	N/A	N/A	25	N/A
Temp (°C) (4m)	N/A	N/A	N/A	N/A	N/A	25.3	N/A	N/A	N/A	N/A	N/A	24.8	N/A
Temp (°C) (5m)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	24.2	N/A
Air (°F)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Secchi (m)	2.5	1.5	bottom	bottom	1.6	4.1	1.5	1.7	1.3	1.1	1.2	1	2
Turbidity (FTU)	7	0	0	3	9	0	6	0	4	0	1	2	0
Nitrates (mg/l)	0.07	0.02	0.18	0.04	0.11	0.13	0.05	0.08	0.04	0.09	0.05	0.13	0.04
Phosphates (mg/l)	0.04	1.74	1.02	2.67	2.27	0.61	1.69	>3.00	1.94	0.07	0.09	0.15	0.94
Alkalinity (ppm)	20	16	20	20	20	20	20	16	12	20	32	24	16
Hardness (ppm)	24	32	28	36	28	32	28	20	20	36	32	32	32

Figure 2. Summary table of the water chemistry results observed in August 2008 at the Hemlock Farms Community Association.

Ecological
Solutions, Inc.



Aquatic Herbicide Treatment Details

Pond/Lake Name: Bluestone Pond

Treatment Date: 8/4/08

Arrival Time: 10:45

Departure Time: 12:42

Water Temperature (°C): _____ pH: _____

Dissolved Oxygen (mg/l): _____ Conductivity (ppm): _____

Water clarity (m): _____

Chemical Name: Citrine Plus; Reward; Aqua Pro

Amount Applied: 3 gals Reward; 3 Citrine Plus; 0.25 Aqua Pro

Additional Information: Citrine/Reward mixture was applied to the boat launch area.

Water lilies were spot treated to a homeowner's request.

Ecological
Solutions, Inc.



Aquatic Herbicide Treatment Details
Ecological Solutions, Inc.

Pond/Lake Name: Rockwood Pond

Treatment Date: 8/4/08

Arrival Time: 1:00

Departure Time: 2:00

Water Temperature (°C): _____

pH: _____

Dissolved Oxygen (mg/l): _____

Conductivity (ppm): _____

Water clarity (m): _____

Chemical Name: Citrine Plus; Reward

Amount Applied: 1.5 gal Reward; 0.5 gal Citrine

Additional Information: _____

**Ecological
Solutions, Inc.**



Aquatic Herbicide Treatment Details

_____ Ecological Solutions, Inc.

Pond/Lake Name: Hemlock Lake

Treatment Date: 8/18/08

Arrival Time: _____

Departure Time: _____

Water Temperature (°C): _____

pH: _____

Dissolved Oxygen (mg/l): _____

Conductivity (ppm): _____

Water clarity (m): _____

Chemical Name: Copper Sulfate

Amount Applied: 275 lbs

Additional Information: beach areas and shoreline were treated heavily.

**Ecological
Solutions, Inc.**



Aquatic Herbicide Treatment Details

Ecological Solutions, Inc.

Pond/Lake Name: Lower Hemlock Lake

Treatment Date: 8/18/08

Arrival Time: _____

Departure Time: _____

Water Temperature (°C): _____

pH: _____

Dissolved Oxygen (mg/l): _____

Conductivity (ppm): _____

Water clarity (m): _____

Chemical Name: Copper Sulfate

Amount Applied: 50 lbs

Additional Information: covered evenly on the surface.
